

Appendix B

Sampling Accuracy

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Standards (i.e., premixed gas samples at verified concentrations) were purchased at concentrations of 1, 100, 500 and 1,000 ppm. These standard gasses were analyzed before analysis of each set of vapor samples from the vadose zone at the Subsurface Disposal Area to quantify and validate instrument performance. Table B-1 and Figures B-1, B-2, B-3, B-4, and B-5 illustrate the accuracy of the Brüel and Kjær photoacoustic gas analyzer during the year-end 2002 operational period.

Table B-1. Brüel and Kjær photoacoustic gas analyzer sampling accuracy.

| | | CHCl ₃ | | | | TCE | | | | CCl ₄ | | | | H ₂ O | | | | % Error | | | | CCl ₄ Standard Gas | | | | | | | | | |
|-------|-----------|-------------------|--------|------|--------|-------|--------|-------|--------|------------------|--------|------------------|--------|------------------|--------|------------------|--------|------------------|--------|----------|-----------|-------------------------------|------------------|--------|----------|-----------|-----------|--|--|--|--|
| Date | | Time | (ppmv) | TCA | (ppmv) | PCE | (ppmv) | TCE | (ppmv) | CCl ₄ | (ppmv) | H ₂ O | (ppmv) | CCl ₄ | (ppmv) | H ₂ O | (ppmv) | CCl ₄ | (ppmv) | Standard | Lower 20% | Upper 20% | CCl ₄ | (ppmv) | Standard | Lower 20% | Upper 20% | | | | |
| 1 ppm | 7/3/2002 | 9:23 | 0.821 | 2.19 | 1.32 | 1.12 | 1.08 | 1.12 | 1.08 | 3,470 | 107% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | |
| | 7/9/2002 | 12:01 | 0.892 | 2.06 | 1.3 | 1.2 | 1.29 | 2,990 | 128% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/9/2002 | 12:04 | 1.08 | 2.09 | 1.3 | 1.11 | 1.03 | 3,020 | 102% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/11/2002 | 12:01 | 0.74 | 2.08 | 1.25 | 1.27 | 1.15 | 2,270 | 114% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/11/2002 | 12:04 | 1.06 | 2.25 | 1.32 | 1.1 | 1.07 | 2,400 | 106% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/11/2002 | 9:10 | 0.925 | 2.04 | 1.25 | 1.12 | 0.928 | 4,440 | 92% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/18/2002 | 8:57 | 0.806 | 1.96 | 1.2 | 1.03 | 0.956 | 4,340 | 95% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/25/2002 | 11:50 | 0.708 | 2.22 | 1.35 | 1.21 | 1.17 | 3,620 | 116% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 7/25/2002 | 11:53 | 1.01 | 2.25 | 1.36 | 1.12 | 1.05 | 3,520 | 104% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/1/2002 | 9:57 | 0.867 | 2.08 | 1.23 | 1.01 | 0.978 | 3,520 | 97% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/7/2002 | 14:16 | 0.618 | 1.94 | 1.29 | 1.16 | 1.05 | 3,620 | 104% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/7/2002 | 14:18 | 0.743 | 1.96 | 1.28 | 1.07 | 1.05 | 3,520 | 104% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/8/2002 | 12:44 | 0.88 | 2.22 | 1.37 | 1.19 | 1.06 | 2,810 | 105% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/8/2002 | 9:34 | 0.905 | 2.07 | 1.15 | 0.986 | 0.84 | 4,500 | 83% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/15/2002 | 8:50 | 0.795 | 2.01 | 1.26 | 1.07 | 1.06 | 3,220 | 105% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/22/2002 | 9:21 | 0.734 | 2.19 | 1.29 | 1.1 | 1.02 | 2,130 | 101% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 8/29/2002 | 9:57 | 0.818 | 2.18 | 1.23 | 1.07 | 1.03 | 4,600 | 102% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/5/2002 | 8:35 | 0.847 | 2.19 | 1.26 | 1.05 | 1.15 | 2,990 | 114% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/5/2002 | 8:38 | 0.967 | 2.12 | 1.23 | 1.09 | 1.04 | 2,640 | 103% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/5/2002 | 8:40 | 1.07 | 2.12 | 1.25 | 1.08 | 1.03 | 2,870 | 102% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/10/2002 | 12:34 | 0.929 | 1.98 | 1.07 | 0.909 | 0.792 | 6,170 | 78% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/10/2002 | 12:54 | 0.893 | 2.03 | 1.32 | 1.12 | 0.977 | 3,600 | 97% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/11/2002 | 12:44 | 0.759 | 2.11 | 1.27 | 1.08 | 1.03 | 3,920 | 102% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |
| | 9/12/2002 | 9:00 | 0.996 | 2.19 | 1.25 | 1.16 | 0.979 | 4,600 | 97% | 1.01 | 0.808 | 1.212 | | | | | | | | | | | | | | | | | | | |

Table B-1. (continued).

| 1 ppm | CHCl ₃ TCA PCE TCE CCl ₄ H ₂ O | | | | | | | | | | % Error | | CCl ₄ Standard Gas | |
|-------|---|-------|--------------------------|------------|------------|------------|-------------------------|-------------------------|------------------|----------|-----------|-----------|-------------------------------|-----------|
| | Date | Time | CHCl ₃ (ppmv) | TCA (ppmv) | PCE (ppmv) | TCE (ppmv) | CCl ₄ (ppmv) | H ₂ O (ppmv) | CCl ₄ | Standard | Lower 20% | Upper 20% | Lower 20% | Upper 20% |
| | 9/19/2002 | 9:37 | 0.736 | 2 | 1.28 | 0.943 | 0.975 | 4,420 | 97% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 9/26/2002 | 9:40 | 0.838 | 2.12 | 1.28 | 1.11 | 1.06 | 2,610 | 105% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/1/2002 | 9:28 | 0.828 | 1.91 | 1.19 | 1.01 | 0.971 | 3,960 | 96% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/2/2002 | 9:17 | 0.984 | 2.2 | 1.4 | 1.14 | 1.05 | 3,250 | 104% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/3/2002 | 9:39 | 0.912 | 2.01 | 1.25 | 1.12 | 1 | 1,830 | 99% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/3/2002 | 9:42 | 1.05 | 2.09 | 1.27 | 1.15 | 0.992 | 2,000 | 98% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/17/2002 | 8:48 | 1.88 | 3.11 | 2.5 | 1.69 | 1.29 | 2,470 | 128% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/24/2002 | 9:11 | 5.91 | 9.68 | 10.4 | 6.3 | 4.36 | 3,370 | 432% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 10/31/2002 | 9:24 | 5.96 | 8.42 | 11.2 | 6.83 | 3.36 | 2,580 | 333% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/4/2002 | 13:57 | 1.14 | 2.54 | 2.07 | 1.38 | 1.24 | 920 | 123% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/4/2002 | 14:00 | 1.36 | 2.51 | 1.96 | 1.37 | 1.15 | 1,050 | 114% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/6/2002 | 9:27 | 1.62 | 2.65 | 2.47 | 1.6 | 1.12 | 1,820 | 111% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/7/2002 | 9:42 | 1.59 | 2.33 | 1.64 | 1.11 | 32.6 | 2,250 | 3,228% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/14/2002 | 8:40 | 4.52 | 7.33 | 6.74 | 4.62 | 7.39 | 2,050 | 732% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/21/2002 | 9:13 | 1.71 | 2.74 | 2.21 | 1.55 | 2.23 | 2,320 | 221% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 11/27/2002 | 9:08 | 1.31 | 2.45 | 1.44 | 1.26 | 21.5 | 1,630 | 2,129% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/2/2002 | 14:01 | 2.02 | 3.14 | 2.41 | 1.736 | 1.57 | 3,500 | 155% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/2/2002 | 14:04 | 2.43 | 3.17 | 2.28 | 1.82 | 1.42 | 3,750 | 141% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/3/2002 | 8:09 | 1.81 | 2.91 | 2.37 | 1.56 | 1.37 | 3,050 | 136% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/5/2002 | 9:22 | 2.64 | 4.37 | 3.6 | 2.53 | 1.9 | 2,260 | 188% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/5/2002 | 9:25 | 2.94 | 4.4 | 3.68 | 2.46 | 1.89 | 2,900 | 187% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/12/2002 | 9:10 | 3.22 | 5.22 | 6.37 | 3.71 | 2.22 | 3,040 | 220% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |
| | 12/19/2002 | 9:49 | 1.42 | 2.39 | 1.6 | 1.19 | 17.5 | 1,610 | 1,733% | 1.01 | 0.808 | 1.212 | 0.808 | 1.212 |

Table B-1. (continued).

| 100 ppm | Date | Time (ppmv) | CHCl ₃ | | | TCA (ppmv) | PCE (ppmv) | TCE (ppmv) | CCl ₄ (ppmv) | H ₂ O (ppmv) | % Error | | CCl ₄ Standard Gas | |
|---------|-----------|-------------|-------------------|--------|--------|------------|------------|------------|-------------------------|-------------------------|------------------|----------|-------------------------------|-----------|
| | | | (ppmv) | (ppmv) | (ppmv) | | | | | | CCl ₄ | Standard | Lower 20% | Upper 20% |
| | 7/3/2002 | 9:25 | 98.9 | 184 | 98.8 | 97.6 | 84.5 | 4,320 | 84% | 100.5 | 80.4 | 120.6 | | |
| | 7/9/2002 | 12:06 | 104 | 195 | 105 | 102 | 89.2 | 3,010 | 89% | 100.5 | 80.4 | 120.6 | | |
| | 7/11/2002 | 12:07 | 107 | 200 | 108 | 105 | 92.1 | 4,450 | 92% | 100.5 | 80.4 | 120.6 | | |
| | 7/11/2002 | 9:13 | 109 | 204 | 114 | 108 | 92.5 | 3,030 | 92% | 100.5 | 80.4 | 120.6 | | |
| | 7/18/2002 | 8:59 | 106 | 196 | 114 | 106 | 89 | 4,580 | 89% | 100.5 | 80.4 | 120.6 | | |
| | 7/25/2002 | 11:55 | 110 | 204 | 115 | 108 | 92.6 | 3,000 | 92% | 100.5 | 80.4 | 120.6 | | |
| | 8/1/2002 | 9:59 | 104 | 193 | 107 | 102 | 88 | 2,980 | 88% | 100.5 | 80.4 | 120.6 | | |
| | 8/7/2002 | 14:20 | 96.3 | 1,080 | 99 | 96.8 | 84 | 4,540 | 84% | 100.5 | 80.4 | 120.6 | | |
| | 8/8/2002 | 12:47 | 107 | 199 | 111 | 106 | 92.1 | 2,490 | 92% | 100.5 | 80.4 | 120.6 | | |
| | 8/8/2002 | 9:36 | 106 | 197 | 111 | 104 | 89.4 | 2,820 | 89% | 100.5 | 80.4 | 120.6 | | |
| | 8/15/2002 | 8:52 | 102 | 189 | 108 | 101 | 85.8 | 2,830 | 85% | 100.5 | 80.4 | 120.6 | | |
| | 8/22/2002 | 9:23 | 106 | 196 | 114 | 106 | 89.2 | 2,300 | 89% | 100.5 | 80.4 | 120.6 | | |
| | 8/29/2002 | 9:59 | 103 | 191 | 106 | 101 | 87.5 | 4,980 | 87% | 100.5 | 80.4 | 120.6 | | |
| | 9/5/2002 | 8:42 | 102 | 190 | 107 | 101 | 86.4 | 4,850 | 86% | 100.5 | 80.4 | 120.6 | | |
| | 9/9/2002 | 12:36 | 99.2 | 184 | 105 | 98.1 | 83.5 | 5,230 | 83% | 100.5 | 80.4 | 120.6 | | |
| | 9/9/2002 | 12:38 | 99.8 | 185 | 107 | 99.9 | 85.1 | 5,480 | 85% | 100.5 | 80.4 | 120.6 | | |
| | 9/10/2002 | 12:57 | 103 | 191 | 108 | 101 | 86.4 | 3,500 | 86% | 100.5 | 80.4 | 120.6 | | |
| | 9/11/2002 | 12:46 | 109 | 202 | 114 | 107 | 91.8 | 3,360 | 91% | 100.5 | 80.4 | 120.6 | | |
| | 9/12/2002 | 9:03 | 107 | 199 | 112 | 105 | 90.5 | 3,130 | 90% | 100.5 | 80.4 | 120.6 | | |
| | 9/19/2002 | 9:39 | 104 | 193 | 109 | 102 | 124 | 3,090 | 123% | 100.5 | 80.4 | 120.6 | | |
| | 9/26/2002 | 9:43 | 107 | 199 | 116 | 108 | 103 | 3,100 | 102% | 100.5 | 80.4 | 120.6 | | |
| | 10/1/2002 | 9:30 | 105 | 195 | 116 | 105 | 88.6 | 3,390 | 88% | 100.5 | 80.4 | 120.6 | | |
| | 10/2/2002 | 9:19 | 107 | 199 | 1158 | 106 | 90.6 | 2,660 | 90% | 100.5 | 80.4 | 120.6 | | |
| | 10/3/2002 | 9:45 | 107 | 199 | 111 | 104 | 90.2 | 2,560 | 90% | 100.5 | 80.4 | 120.6 | | |

Table B-1. (continued).

| | CHCl ₃ | | | | TCA | | | | PCE | | | | TCE | | | | CCl ₄ | | | | H ₂ O | | | | % Error | | | | CCl ₄ Standard Gas | | | | | | |
|---------|-------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|------------|--------|--------|--------|------------------|--------|--------|--------|------------------|---------|------------------|------------|-----------|-----------|------------------|----------|-------------------------------|-----------|-------|-----|--------|---------|---------|
| | Date | Time (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | CCl ₄ | Standard | Lower 20% | Upper 20% | CCl ₄ | Standard | Lower 20% | Upper 20% | | | | | |
| 100 ppm | 10/10/2002 | 10:04 | 177 | 330 | 174 | 176 | 156 | 4,900 | 155% | 100.5 | 80.4 | 120.6 | 10/17/2002 | 8:50 | 105 | 197 | 106 | 89.7 | 2,160 | 89% | 100.5 | 80.4 | 120.6 | 10/24/2002 | 9:14 | 118 | 218 | 125 | 117 | 99.7 | 3,040 | 99% | 100.5 | 80.4 | 120.6 |
| | 10/31/2002 | 9:26 | 109 | 203 | 114 | 108 | 92.7 | 2,060 | 92% | 100.5 | 80.4 | 120.6 | 11/4/2002 | 14:02 | 106 | 200 | 108 | 91.7 | 1,710 | 91% | 100.5 | 80.4 | 120.6 | 11/6/2002 | 9:30 | 102 | 190 | 105 | 101 | 86.6 | 1,950 | 86% | 100.5 | 80.4 | 120.6 |
| | 11/7/2002 | 9:45 | 103 | 193 | 105 | 102 | 92 | 1,910 | 92% | 100.5 | 80.4 | 120.6 | 11/14/2002 | 8:43 | 107 | 199 | 109 | 109 | 1,880 | 108% | 100.5 | 80.4 | 120.6 | 11/21/2002 | 9:16 | 103 | 193 | 105 | 101 | 88.4 | 2,690 | 88% | 100.5 | 80.4 | 120.6 |
| | 11/27/2002 | 9:11 | 105 | 196 | 107 | 103 | 93.2 | 1,680 | 93% | 100.5 | 80.4 | 120.6 | 12/2/2002 | 14:07 | 107 | 199 | 110 | 93.4 | 3,580 | 93% | 100.5 | 80.4 | 120.6 | 12/3/2002 | 8:11 | 108 | 199 | 111 | 106 | 90.8 | 2,160 | 90% | 100.5 | 80.4 | 120.6 |
| | 12/5/2002 | 9:28 | 102 | 189 | 106 | 100 | 155 | 2,360 | 154% | 100.5 | 80.4 | 120.6 | 12/12/2002 | 9:12 | 108 | 199 | 113 | 97.3 | 2,410 | 97% | 100.5 | 80.4 | 120.6 | 12/19/2002 | 9:51 | 109 | 203 | 115 | 108 | 95.1 | 2,110 | 95% | 100.5 | 80.4 | 120.6 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 500 ppm | 9/5/2002 | 8:45 | 457 | 835 | 459 | 440 | 433 | 3,220 | 87% | 498.87 | 399.096 | 598.644 | 9/5/2002 | 8:47 | 457 | 837 | 468 | 437 | 3,670 | 88% | 498.87 | 399.096 | 598.644 | 9/9/2002 | 12:41 | 419 | 774 | 409 | 395 | 370 | 8,180 | 74% | 498.87 | 399.096 | 598.644 |
| | 9/10/2002 | 13:00 | 463 | 851 | 475 | 446 | 397 | 5,370 | 80% | 498.87 | 399.096 | 598.644 | 9/11/2002 | 12:49 | 502 | 920 | 512 | 429 | 4,700 | 86% | 498.87 | 399.096 | 598.644 | 9/12/2002 | 9:05 | 513 | 937 | 519 | 493 | 436 | 4,290 | 87% | 498.87 | 399.096 | 598.644 |
| | 9/19/2002 | 9:42 | 488 | 895 | 490 | 471 | 417 | 4,510 | 84% | 498.87 | 399.096 | 598.644 | 9/26/2002 | 9:45 | 509 | 935 | 505 | 440 | 3,580 | 88% | 498.87 | 399.096 | 598.644 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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Table B-1. (continued).

| | CHCl ₃ | | | | | | TCE | | CCl ₄ | | H ₂ O | | % Error | | CCl ₄ Standard Gas | |
|------------------|-------------------|-------|--------|------|------|--------|--------|--------|------------------|--------|------------------|----------|------------------|----------|-------------------------------|-----------|
| | Date | Time | (ppmv) | TCA | PCE | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | (ppmv) | CCl ₄ | Standard | Lower 20% | Upper 20% |
| 500 ppm | 10/3/2002 | 9:47 | 402 | 736 | 397 | 386 | 341 | 3,010 | 68% | 498.87 | 399.096 | 598.644 | | | | |
| | 10/17/2002 | 8:53 | 409 | 747 | 395 | 389 | 346 | 2,310 | 69% | 498.87 | 399.096 | 598.644 | | | | |
| | 10/24/2002 | 9:16 | 527 | 965 | 512 | 504 | 451 | 3,630 | 90% | 498.87 | 399.096 | 598.644 | | | | |
| | 11/4/2002 | 14:05 | 497 | 913 | 496 | 482 | 487 | 2,060 | 98% | 498.87 | 399.096 | 598.644 | | | | |
| | 11/6/2002 | 9:33 | 525 | 961 | 519 | 505 | 455 | 1,950 | 91% | 498.87 | 399.096 | 598.644 | | | | |
| | 11/14/2002 | 8:46 | 529 | 973 | 532 | 512 | 459 | 3,180 | 92% | 498.87 | 399.096 | 598.644 | | | | |
| | 11/21/2002 | 9:18 | 533 | 984 | 537 | 514 | 460 | 2,770 | 92% | 498.87 | 399.096 | 598.644 | | | | |
| | 11/27/2002 | 9:14 | 531 | 972 | 530 | 510 | 454 | 2,250 | 91% | 498.87 | 399.096 | 598.644 | | | | |
| | 12/2/2002 | 14:09 | 519 | 967 | 523 | 502 | 455 | 5,380 | 91% | 498.87 | 399.096 | 598.644 | | | | |
| | 12/3/2002 | 8:14 | 532 | 971 | 525 | 510 | 452 | 2,130 | 91% | 498.87 | 399.096 | 598.644 | | | | |
| | 12/5/2002 | 9:30 | 537 | 986 | 551 | 517 | 462 | 4,510 | 93% | 498.87 | 399.096 | 598.644 | | | | |
| | 12/12/2002 | 9:15 | 505 | 925 | 491 | 483 | 430 | 2,950 | 86% | 498.87 | 399.096 | 598.644 | | | | |
| | 12/19/2002 | 9:54 | 500 | 921 | 486 | 478 | 436 | 2,520 | 87% | 498.87 | 399.096 | 598.644 | | | | |
| 1,000 ppm | 7/3/2002 | 9:28 | 3.33 | 1.32 | 6.46 | 0 | 1,000 | 3,640 | 100% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 7/9/2002 | 12:09 | 4.89 | 1.65 | 6.03 | 0 | 890 | 6,510 | 89% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 7/11/2002 | 12:09 | 3.12 | 1.18 | 6.64 | 0 | 1,020 | 4,100 | 102% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 7/11/2002 | 9:15 | 4.57 | 3.76 | 7.59 | 0 | 843 | 5,320 | 84% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 7/18/2002 | 9:02 | 3.54 | 1.27 | 6.59 | 0 | 926 | 5,460 | 93% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 7/25/2002 | 11:57 | 3.77 | 1.51 | 7.07 | 0 | 930 | 4,660 | 93% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 8/1/2002 | 10:02 | 3.37 | 1.31 | 6.39 | 0 | 898 | 4,490 | 90% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 8/7/2002 | 14:23 | 2.4 | 1.13 | 5.57 | 0 | 909 | 5,500 | 91% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 8/8/2002 | 12:49 | 3.99 | 1.89 | 7.59 | 0 | 941 | 3,720 | 94% | 998.8 | 799.04 | 1,198.56 | | | | |
| | 8/8/2002 | 9:39 | 3.51 | 1.44 | 6.72 | 0 | 901 | 4,540 | 90% | 998.8 | 799.04 | 1,198.56 | | | | |

Table B-1. (continued).

| 1,000 ppm | Date | Time | CHCl ₃ | | | TCA | PCE | TCE | CCl ₄ | H ₂ O | % Error | | CCl ₄ Standard Gas | |
|-----------|------------|-------|-------------------|--------|--------|------|-----|-------|------------------|------------------|------------------|----------|-------------------------------|-----------|
| | | | (ppmv) | (ppmv) | (ppmv) | | | | | | CCl ₄ | Standard | Lower 20% | Upper 20% |
| | 8/15/2002 | 8:55 | 3.47 | 1.3 | 6.42 | 0 | 903 | 3,620 | 90% | 998.8 | 799.04 | 1,198.56 | | |
| | 8/22/2002 | 9:26 | 3.55 | 1.13 | 6.5 | 0 | 938 | 2,510 | 94% | 998.8 | 799.04 | 1,198.56 | | |
| | 8/29/2002 | 10:02 | 3.45 | 1.3 | 6.22 | 0 | 919 | 7,350 | 92% | 998.8 | 799.04 | 1,198.56 | | |
| | 9/5/2002 | 8:50 | 6.04 | 6.78 | 21.6 | 0 | 887 | 6,740 | 89% | 998.8 | 799.04 | 1,198.56 | | |
| | 9/19/2002 | 9:45 | 9.11 | 11.1 | 27 | 0 | 829 | 6,420 | 83% | 998.8 | 799.04 | 1,198.56 | | |
| | 9/26/2002 | 9:48 | 11.6 | 18.1 | 25.7 | 0 | 923 | 2,990 | 92% | 998.8 | 799.04 | 1,198.56 | | |
| | 10/1/2002 | 9:33 | 4.04 | 2.37 | 9.24 | 0 | 788 | 5,550 | 79% | 998.8 | 799.04 | 1,198.56 | | |
| | 10/2/2002 | 9:22 | 3.59 | 1.58 | 7.42 | 0 | 872 | 3,970 | 87% | 998.8 | 799.04 | 1,198.56 | | |
| | 10/3/2002 | 9:50 | 5.29 | 5.65 | 16.6 | 0 | 851 | 3,900 | 85% | 998.8 | 799.04 | 1,198.56 | | |
| | 10/17/2002 | 8:55 | 5.78 | 5.79 | 16.2 | 0 | 983 | 2,650 | 98% | 998.8 | 799.04 | 1,198.56 | | |
| | 10/24/2002 | 9:19 | 6.71 | 7.97 | 20.8 | 0 | 961 | 4,390 | 96% | 998.8 | 799.04 | 1,198.56 | | |
| | 10/30/2002 | 9:29 | 4.01 | 2.08 | 7.2 | 0 | 980 | 2,280 | 98% | 998.8 | 799.04 | 1,198.56 | | |
| | 11/4/2002 | 14:07 | 6.69 | 7.48 | 19.7 | 0 | 965 | 3,210 | 97% | 998.8 | 799.04 | 1,198.56 | | |
| | 11/6/2002 | 9:35 | 8.85 | 11.7 | 23.1 | 0 | 983 | 1,590 | 98% | 998.8 | 799.04 | 1,198.56 | | |
| | 11/7/2002 | 9:47 | 4.53 | 2.23 | 7.77 | 0 | 959 | 2,750 | 96% | 998.8 | 799.04 | 1,198.56 | | |
| | 11/14/2002 | 8:48 | 7.4 | 8.25 | 22.1 | 0 | 987 | 2,790 | 99% | 998.8 | 799.04 | 1,198.56 | | |
| | 11/21/2002 | 9:21 | 10.8 | 14 | 27.1 | 0 | 955 | 2,920 | 96% | 998.8 | 799.04 | 1,198.56 | | |
| | 11/27/2002 | 9:16 | 7.07 | 7.39 | 20.6 | 0 | 994 | 1,930 | 100% | 998.8 | 799.04 | 1,198.56 | | |
| | 12/2/2002 | 14:12 | 69.1 | 123 | 90.9 | 54.9 | 921 | 4,890 | 92% | 998.8 | 799.04 | 1,198.56 | | |
| | 12/3/2002 | 8:17 | 16.3 | 21.8 | 41 | 2.46 | 959 | 3,100 | 96% | 998.8 | 799.04 | 1,198.56 | | |
| | 12/5/2002 | 9:33 | 10.9 | 12.1 | 34.6 | 0 | 995 | 4,340 | 100% | 998.8 | 799.04 | 1,198.56 | | |
| | 12/12/2002 | 9:17 | 21 | 31.4 | 41.4 | 5.07 | 973 | 2,560 | 97% | 998.8 | 799.04 | 1,198.56 | | |
| | 12/19/2002 | 9:56 | 8.3 | 9.58 | 23.9 | 0 | 979 | 2,530 | 98% | 998.8 | 799.04 | 1,198.56 | | |

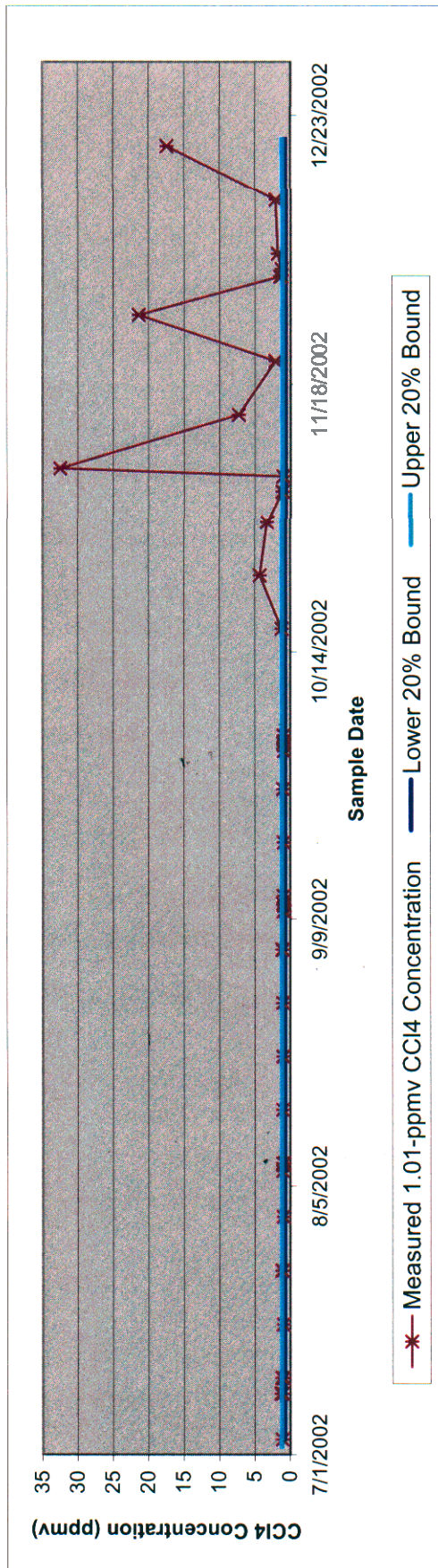


Figure B-1. Brüel and Kjær photoacoustic gas analyzer 1.01-ppmv carbon tetrachloride standard.

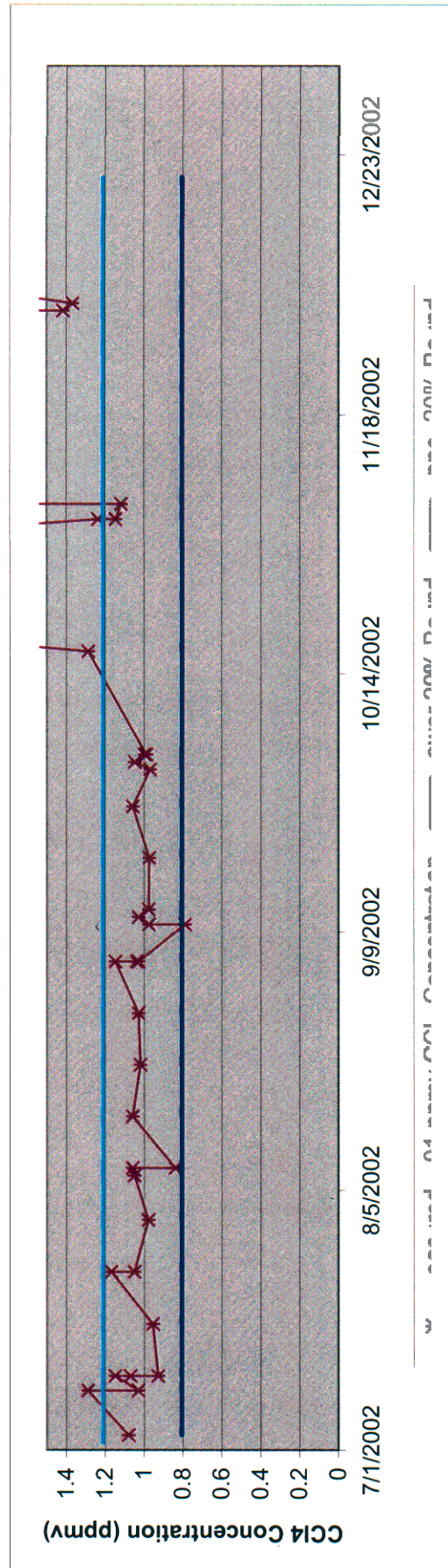


Figure B-2. Brüel and Kjær photoacoustic gas analyzer 1.01-ppmv carbon tetrachloride standard magnified scale July 1 through October 14, 2002.

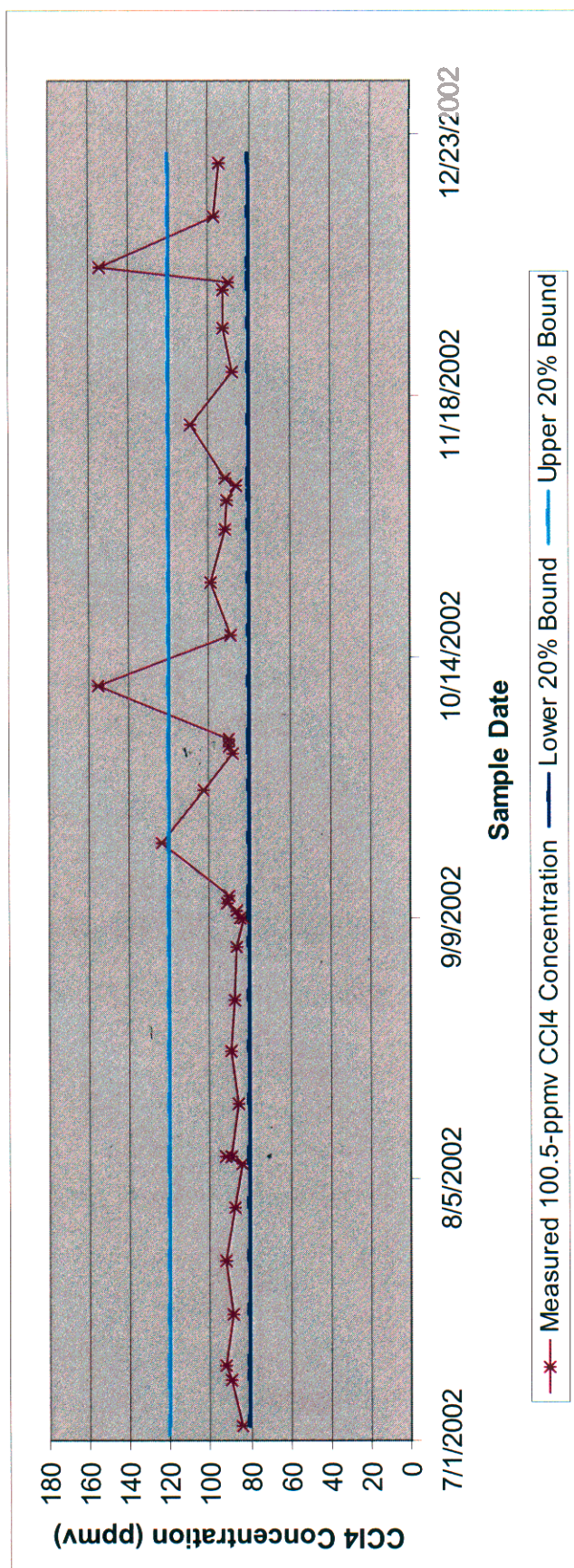


Figure B-3. Brüel and Kjær photoacoustic gas analyzer 100.5-ppmv carbon tetrachloride standard.

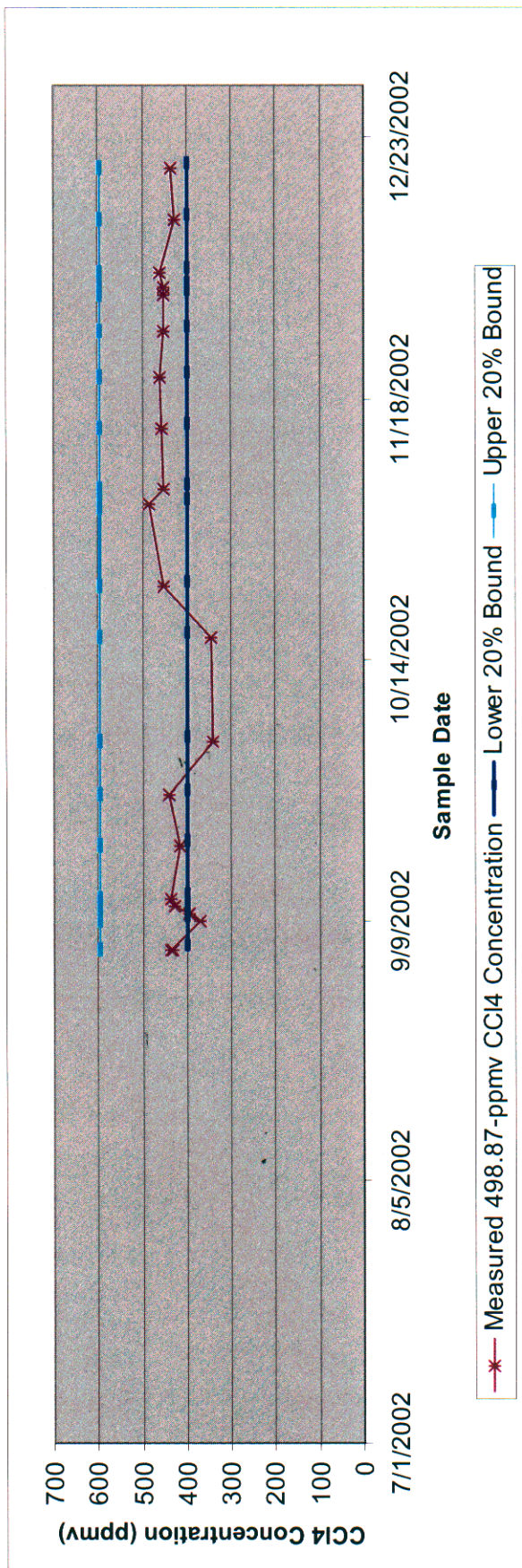


Figure B-4. Brüel and Kjær photoacoustic gas analyzer 498.87-ppmv carbon tetrachloride standard.

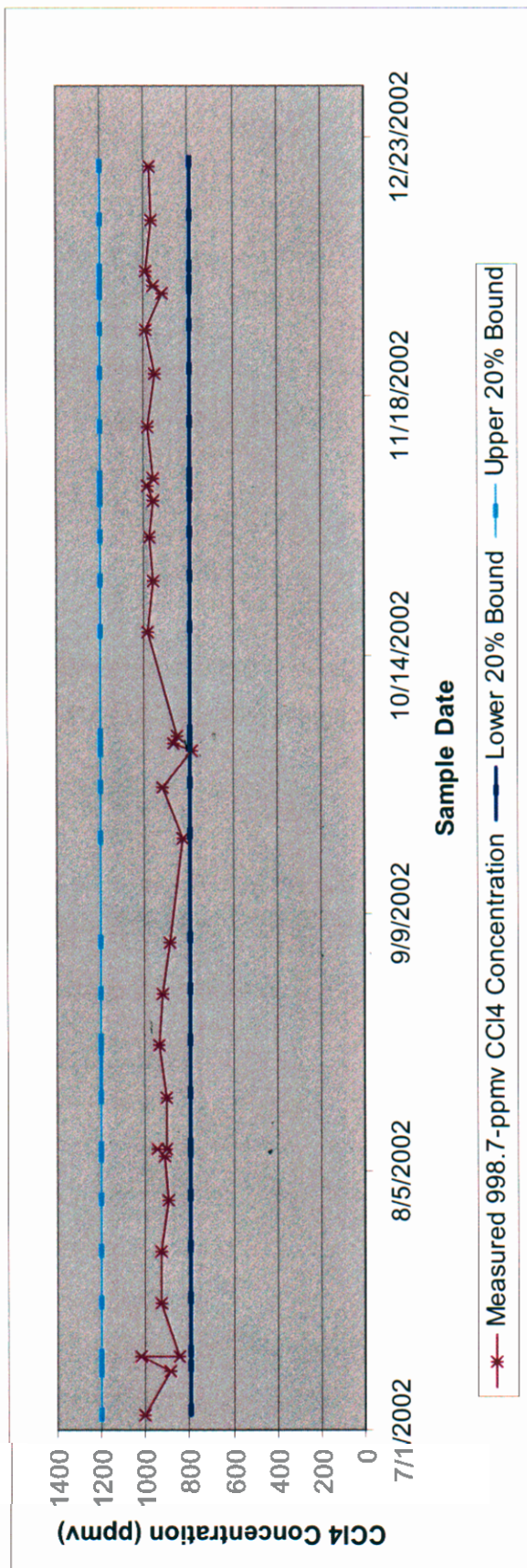


Figure B-5. Brüel and Kjær photoacoustic gas analyzer 998.77-ppmv carbon tetrachloride standard.

